Vol. 236
Contents

2004

Available online at www.sciencedirect.com
SCIENCE DIRECT®
ELSEVIER
Aquaculture 236 (2004) 687–690
Aquaculture
www.elsevier.com/locate/aqua-online

Contents of *Aquaculture*, Volume 236

VOL. 236 NOS. 1–4 **14 June 2004**

Review article

Cryopreservation and short-term storage of sturgeon sperm, a review
R. Billard (Paris, France), J. Cosson (Villefranche sur Mer, France), S.B. Noveiri and M. Pourkazemi (Rasht, Iran) 1

Diseases

The first report of an iridovirus-like agent infection in farmed turbot, *Scophthalmus maximus*, in China
C.-Y. Shi, Y.-G. Wang, S.-L. Yang, J. Huang and Q.-Y. Wang (Qingdao, PR China) 11

Quantitative properties of data generated by the examination of *Aeromonas salmonicida* infected fish by the standard bacteriological loop
R. Coyne, B. Hjeltnes, Ø. Bergh, K. Andersen, H. Rudra (Bergen, Norway) and P. Smith (Galway, Ireland) 27

Bacteria of subclass γ-Proteobacteria associated with commercial *Argopecten purpuratus* (Lamark, 1819) hatcheries in Chile
M.A. Jorquera, M. Lody, Y. Leyton and C. Riquelme (Antofagasta, Chile) 37

Effect of butanolic extracts from terrestrial herbs and seaweeds on the survival, growth and pathogen (*Vibrio parahaemolyticus*) load on shrimp *Penaeus indicus* juveniles
G. Immanuel, V.C. Vincybai, V. Sivaram, A. Palavesam and M.P. Marian (Tamilnadu, India) 53

Efficacy of Aqui-S, formalin and praziquantel against the monogeneans, *Benedenia seriolae* and *Zeuxapta seriolae*, infecting yellowtail kingfish *Seriola lalandi lalandi* in New Zealand
N.J. Sharp (Ocean Springs, MS, USA), B.K. Diggles (Wellington, New Zealand), C.W. Poortenaar (Auckland, New Zealand) and T.J. Willis (Ravenna, Italy) 67

Mass mortality of hatchery-reared milkfish (*Chanos chanos*) and mangrove red snapper (*Lutjanus argentimaculatus*) caused by *Amyloodinium ocellatum* (Dinoflagellida)
E.R. Cruz-Lacierda (Iloilo, Philippines), Y. Maeno (Nagasaki, Japan), A.J.T. Pineda (Iloilo, Philippines) and V.E. Matey (San Diego, CA, USA) 85

Diplostomum in pond-reared walleye *Stizostedion vitreum*—implications of a management strategy for control
C.R. Sangster (Ithaca, NY, USA), A.D.M. Dove and P.R. Bowser (Ithaca, Stony Brook, NY, USA) 95

Pathology of *Anophryoides haemophila* (Scuticociliatida: Orchitophryidae), parasite of American lobster *Homarus americanus* kept under experimental conditions
F. Athanassopoulou (Karditsa, Greece), D. Speare, R.J. Cawthorn, R. MacMillan and B. Despres (Charlottetown, Prince Edward Island, Canada) 103

Oral immunization using alginate microparticles as a useful strategy for booster vaccination against fish lactoccocosis
J.L. Romalde, A. Luzardo-Alvárez, C. Ravelo, A.E. Toranzo and J. Blanco-Méndez (Santiago de Compostela, Spain) 119

Genetics

Genetic diversity in farmed Asian Nile and red hybrid tilapia stocks evaluated from microsatellite and mitochondrial DNA analysis
M.R.R. Romana-Eguia (Rizal, Philippines; Sendai, Japan), M. Ikeda (Sendai, Japan), Z.U. Basiao (Rizal, Philippines) and N. Taniguchi (Sendai, Japan) 131
Genetic parameter estimates for reproductive traits and egg composition in Pacific white shrimp *Penaeus (Litopenaeus) vannamei*
F.G. Arcos, I.S. Racotta and A.M. Ibarra (La Paz, Mexico) 151
Genetic variation for juvenile growth and survival in Atlantic cod (*Gadus morhua*)
B. Gjerde (Norway), B.F. Terjesen, Y. Barr, I. Lein and I. Thorland (Sunndalsøra, Norway) 167
Field observations on growth, gametogenesis, and sex ratio of triploid and diploid *Mytilus edulis*
J. Brake, J. Davidson and J. Davis (Charlottetown, Canada) 179
Production of gynogenetic progeny from allotetraploid hybrids red crucian carp×common carp
S. Liu, Y. Sun, C. Zhang, K. Luo and Y. Liu (Changsha, People's Republic of China) 193
Shock timing in mitogynogenesis and tetraploidization of the European sea bass *Dicentrarchus labrax*
A. Francescon, A. Libertini, D. Bertotto and A. Barbaro (Venice, Italy) 201
All-male hybrid (*Cherax albidus*×*Cherax rotundus*) yabbies grow faster than mixed-sex (*C. albidus*×*C. albidus*) yabbies
C.S. Lawrence (North Beach, WA, Australia) 211

Husbandry and Management

Nursery culture of *Haliotis rubra*: the effect of cultured algae and larval density on settlement and juvenile production
S. Daume (Warrnambool, Australia), S. Huchette (Parkville, Australia), S. Ryan (Warrnambool, Australia) and R.W. Day (Parkville, Australia) 221
Breeding and fecundity of the endemic Australian gudgeon, sleepy cod *Oxyeleotris lineolatus* (Steindachner 1867) (Eleotridae)
B. Herbert and P. Graham (Walkamin, Que., Australia) 241
Comparison of genetic diversity in the recently founded Connecticut River Atlantic salmon population to that of its primary donor stock, Maine's Penobscot River
A.P. Spidle (Kearneysville, WV, Cape Canaveral, FL, USA), T.L. King (Kearneysville, WV, USA) and B.H. Letcher (Turners Falls, MA, USA) 253
The effect of dietary vitamin E on the pleopodal egg and stage-1 juvenile numbers of freshwater crayfish *Astacus leptodactylus* (Eschscholtz, 1823)
M.M. Harlıoğlu and Ö. Barım (Elazığ, Turkey) 267
Dendrilla nigra, a marine sponge, as potential source of antibacterial substances for managing shrimp diseases
J. Selvin (Kaliakavilai, India) and A.P. Lipton (Trivandrum, India) 277
Mortality of freshwater-acclimated *Litopenaeus vannamei* associated with acclimation rate, habituation period, and ionic challenge
W.J. McGraw and J. Scarpa (Fort Pierce, FL, USA) 285
Morphotypes in male Amazon River Prawns, *Macrobrachium amazonicum*
P.M.C. Moraes-Riodades and W.C. Valenti (Jaboticabal, SP, Brazil) 297
Instrumental versus sensory detection of off-flavors in farm-raised channel catfish
C.C. Grimm, S.W. Lloyd (New Orleans, LA, USA) and P.V. Zimba (Stoneville, MS, USA) 309
Effect of three commercial light sources on acceptability of Salmon, Snapper and Sea Bass fillets
S. Barbut (Guelph, Ontario, Canada) 321
Effect of density and sex ratio on gonad development and spawning in the crayfish *Procambarus llamasi*
C.-O. Claudia (Mérida, Mexico), R.-S. Miguel (Ciudad del Carmen, Mexico), O.-N. Miguel Angel (Mérida, Mexico) and P.J. Gutiérrez-Yurrita (Querétaro, Mexico) 331
An alternative culture system for the hatchery production of abalone without using livefood
A.E. Stott, T. Takeuchi (Tokyo, Japan) and Y. Koike (Chiba, Japan) 341

Nutrition

Fatty acid composition of five candidate aquaculture species in Central Philippines
H.Y. Ogata (Tsukuba, Japan), A.C. Emata, E.S. Garibay (Iloilo, Philippines) and H. Furuita (Tamaki, Japan) 361
Essential fatty acids in the diet of silver perch (*Bidyanus bidyanus*): effect of linolenic and linoleic acid on growth and survival
D.M. Smith (Cleveland, Qld, Australia), B.J. Hunter (Newcastle, NSW, Australia), G.L. Allan (Taylors Beach, NSW, Australia), D.C.K. Roberts (Newcastle, NSW, Australia), M.A. Booth (Taylors Beach, NSW, Australia) and B.D. Glencross (Fremantle, WA, Australia) 377
Utilization of astaxanthin from red yeast, *Xanthophyllomyces dendrorhous*, in rainbow trout, *Oncorhynchus mykiss*: effects of enzymatic cell wall disruption and feed extrusion temperature
T. Storebakken, M. Sørensen (APC, Norway), B. Bjerkeng (Sunndalsøra, Norway) and S. Hiu (Columbia, MD, USA). 391
Effect of dietary cholesterol on growth and survival of juvenile redclaw crayfish *Cherax quadricarinatus* under laboratory conditions
P.V. Hernández (Veracruz, Mexico), M.A. Olvera-Novoa (Mérida, Mexico) and D.B. Rouse (Auburn, AL, USA) 405
Effect of long-term feeding with a plant protein mixture based diet on growth and body/fillet quality traits of large rainbow trout (*Oncorhynchus mykiss*)
M. de Francesco, G. Parisi (Florence, Italy), F. Médale (Saint Pée-sur-Nivelle, France), P. Lupi (Florence, Italy), S.J. Kaushik (Saint Pée-sur-Nivelle, France) and B.M. Poli (Florence, Italy). 413
Litopenaeus vannamei juveniles energetic balance and immunological response to dietary protein
C. Pascual (Mérida, Mexico), E. Zenteno (Mexico), G. Cuzon (Tahiti, French Polynesia), A. Sánchez, G. Gaxiola, G. Taboada, J. Suárez (Mérida, Mexico), T. Maldonado (Mexico) and C. Rosas (Mérida, Mexico). 431
Incorporation of a mixture of plant feedstuffs as substitute for fish meal in diets of juvenile turbot (*Psetta maxima*)
V. Fournier, C. Huelvan and E. Desbruyeres (Plouzané, France) 451
Effects of diets containing vegetable oil on expression of genes involved in highly unsaturated fatty acid biosynthesis in liver of Atlantic salmon (*Salmo salar*)
X. Zheng, D.R. Tocher, C.A. Dickson, J.G. Bell and A.J. Teale (Stirling, UK) 467
Nutritional value of fisheries by-catch and by-product meals in the diet of red drum (*Sciaenops ocellatus*)
P. Li, X. Wang (College Station, TX, USA), R.W. Hardy (Hagerman, ID, USA) and D.M. Gatlin III (College Station, TX, USA) 485
Preliminary assessment of a microbound diet as an *Artemia* replacement for mud crab, *Scylla serrata*, megalopa
J. Genodepa, C. Zeng and P.C. Southgate (Townsville, Que., Australia) 497

Physiology and Endocrinology

Induction of ovarian maturation and spawning by combined treatment of serotonin and a dopamine antagonist, spiperone in *Litopenaeus stylirostris* and *Litopenaeus vannamei*
J. Alfaro, G. Zúñiga (Heredia, Costa Rica) and J. Komen (Wageningen, The Netherlands) 511
Exhaustion of lipid reserves in the hepatopancreas of *Fenneropenaeus indicus* broodstock in relation to successive spawnings
C.G. Vazquez Boucard (La Paz, Mexico), J. Patrois (Tahiti, France) and H.J. Ceccaldi (Marseille, France) 523
Preliminary evidence that cholesterol improves growth and feed intake of soybean meal-based diets in aquaria studies with juvenile channel catfish, *Ictalurus punctatus*
R.G. Twibell and R.P. Wilson (Mississippi State, MS, USA). 539
Cryopreservation of sperm from turbot (*Scophthalmus maximus*) and application to large-scale fertilization
S.-L. Chen (Qingdao, China), X.-S. Ji (Qingdao, Shanghai, China), G.-C. Yu, Y.-S. Tian and Z.-X. Sha (Qingdao, China) 547